

REMARKS

In accordance with the foregoing, the title of the invention, the specification, and claims 17 and 27 have been amended, and new claims 28-30 have been added. No claims have been canceled. Claims 1-30 are pending, with claims 1, 16, 26, and 27 being independent. Claims 1-27 are under consideration. Claims 1-8, 10, 12-22, 24, 26, and 27 were rejected, and claims 9, 11, 17, 23, and 25 were objected to. New claims 28-30 have not yet been considered. No new matter is presented in this amendment.

The title of the invention has been amended to be clearly indicative of the invention to which the claims are directed as required by the Examiner.

The specification has been amended to correct errors and improve its form.

Paragraph [0060] of the specification has been amended to recite "a bi-layer electron injection layer or structure" to be consistent with "a bi-layer electron injection structure" in original claim 26.

Claim 17 has been amended as suggested by the Examiner to overcome the objection to this claim.

Claim 27 has been amended to recite further features of the invention.

New claims 28-30 respectively depending from independent claims 16, 26, and 27 have been added to recite further features of the invention.

Claim Objections

Claim 17 was objected to because of an informality wherein "electorn" should be "electron." Claim 17 has been amended to correct this informality, and it is respectfully requested that the objection to claim 17 be withdrawn.

Claim Rejections Under 35 USC 102

Claims 1-8, 10, 12-22, 24, 26, and 27 were rejected under 35 USC 102(b) as being anticipated by Kido et al. (Kido) (U.S. Patent No. 6,396,209). This rejection is respectfully traversed.

Independent Claim 1

Referring to Fig. 1 of Kido, the Examiner considers cathode 6 to be "a second electrode" as recited in claim 1, luminescent layer 4 to be "an emitting layer" as recited in claim 1, mixed layer (electron injection layer) 5 to be "a first organic film layer" as recited in claim 1, and hole transportation layer 3 to be "a second organic film layer" as recited in claim 1.

However, claim 1 recites that the "second organic film layer" is "provided between the emitting layer and the first organic film layer," which would require Kido's hole transportation layer 3 ("a second organic film layer") to be provided between Kido's luminescent layer 4 ("an emitting layer") and Kido's mixed layer (electron injection layer) 5 ("a first organic film layer") in order to provide this feature of claim 1. However, as can be seen from Fig. 1, Kido's hole transportation layer is not provided between Kido's luminescent layer 4 and Kido's mixed layer (electron injection layer) 5. In fact, no layers are provided between Kido's luminescent layer 4 and Kido's mixed layer (electron injection layer) 5. Accordingly, it is submitted that Kido does not disclose "a second organic film layer provided between the emitting layer and the first organic film layer" as recited in claim 1.

Furthermore, claim 1 recites that "the second organic film layer comprises a mixture of a charge carrier transport material and a second organic metal complex compound." However, it is not seen where Kido discloses that hole transportation layer 3 in Fig. 1 of Kido which the Examiner considers to be "a second organic film layer" as recited in claim 1 "comprises a mixture of a charge carrier transport material and a second organic metal complex compound" as recited in claim 1. Nor did the Examiner point this out in explaining the rejection. Rather, according to column 7, line 26, through column 8, line 14, of Kido, hole transportation layer 3 is formed of an arylamine compound, a dispersion of an arylamine compound in a polymer, or a polymerized product of an arylamine compound. Accordingly, it is submitted that Kido does not disclose the feature of claim 1 "wherein the second organic film layer comprises a mixture of a charge carrier transport material and a second organic metal complex compound."

Since Kido does not disclose at least the features of claim 1 discussed above, it is respectfully requested that the rejection of claim 1 under 35 USC 102(b) as being anticipated by Kido be withdrawn.

Independent Claim 16

Referring to Fig. 1 of Kido, the Examiner considers cathode 6 to be "a second electrode" as recited in claim 16, mixed layer (electron injection layer) 5 to be "a first layer comprising a metal halide, contacted with the second electrode" as recited in claim 16, and hole transportation layer 3 to be "a second layer comprising a mixture of a charge carrier transport material and an organic metal complex compound, deposited under the first layer" as recited in claim 16.

However, it is not seen where Kido discloses that mixed layer (electron injection layer) 5 in Fig. 1 of Kido which the Examiner considers to be "a first layer . . . contacted with the second electrode" as recited in claim 16 comprises "a metal halide" as recited in claim 16. Nor did the Examiner point this out in explaining the rejection. Column 5, line 39, through column 7, line 20, of Kido discloses numerous compounds which can be used to make mixed layer (electron injection layer) 5, but it is not seen where any of these compounds comprise "a metal halide" as recited in claim 16. Accordingly, it is submitted that Kido does not disclose "a first layer comprising a metal halide, contacted with the second electrode" as recited in claim 16.

Furthermore it is not seen where Kido discloses that hole transportation layer 3 in Fig. 1 of Kido which the Examiner considers to be "a second layer . . . deposited under the first layer" as recited in claim 16 comprises "a mixture of a charge carrier transport material and an organic metal complex compound" as recited in claim 16. Nor did the Examiner point this out in explaining the rejection. Rather, according to column 7, line 26, through column 8, line 14, of Kido, hole transportation layer 3 is formed of an arylamine compound, a dispersion of an arylamine compound in a polymer, or a polymerized product of an arylamine compound. Accordingly, it is submitted that Kido does not disclose "a second layer comprising a mixture of a charge carrier transport material and an organic metal complex compound, deposited under the first layer" as recited in claim 16.

Since Kido does not disclose at least the features of claim 16 discussed above, it is respectfully requested that the rejection of claim 16 under 35 USC 102(b) as being anticipated by Kido be withdrawn.

Independent Claim 26

The Examiner considers Kido to disclose "a bi-layer electron injection structure comprising: a first organic film layer comprising a first organic metal complex compound; and a second organic film layer comprising a second organic metal complex compound mixed with an electron transport material" as recited in claim 26. However, the Examiner did not identify where these features of claim 26 are disclosed in Kido as the Examiner was required to do by the decision of *Ex parte Levy*, 17 USPQ2d 1461, 1462 (Bd. Pat. App. & Inter. 1990), wherein the Board states as follows in pertinent part (emphasis by underlining added):

The factual determination of anticipation requires the disclosure in a single reference of every element of the claimed combination. (Citations omitted.) Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference. (Citation omitted.)

In any event, Fig. 1 of Kido shows a mixed layer (electron injection layer) 5 which is a layer formed by co-deposition of an organic metal complex compound and an electron-transporting organic compound as described in column 3, lines 9-11, of Kido. It is submitted that at the time the invention was made, one of ordinary skill in the art would have understood that this co-deposition of two materials disclosed by Kido forms a single layer of a mixture of the two materials. This single layer of a mixture of an organic metal complex compound and an electron-transporting organic compound disclosed in Kido is the only layer disclosed in Kido that appears to perform, or to participate in performing, an electron injection function. Accordingly, although Kido may arguably be considered to disclose a single-layer electron injection structure comprising an organic film layer comprising an organic metal complex compound mixed with an electron transport material," it is submitted that Kido does not disclose "a bi-layer electron injection structure comprising: a first organic film layer comprising a first organic metal complex compound; and a second organic film layer comprising a second organic metal complex compound mixed with an electron transport material" as recited in claim 26.

Since Kido does not disclose at least the features of claim 26 discussed above, it is respectfully requested that the rejection of claim 26 under 35 USC 102(b) as being anticipated by Kido be withdrawn.

Independent Claim 27

The Examiner considers Kido to disclose "an electron transport layer; wherein the electron transport layer is a mixture of an organic metal complex compound and an existing electron transport layer" as previously recited in claim 27. However, the Examiner did not identify where these features of claim 27 are disclosed in Kido as the Examiner was required to do by the decision of *Ex parte Levy* discussed above.

In any event, although the propriety of the rejection of claim 27 is not conceded, claim 27 has been amended to recite "a bi-layer electron injection structure comprising: a first layer; and a second layer comprising a mixture of an organic metal complex compound and an electron transport material." It is submitted that Kido does not disclose these features of claim 27 for at least the reasons discussed above that Kido does not disclose the similar features "a bi-layer electron injection structure comprising: a first organic film layer comprising a first organic metal complex compound; and a second organic film layer comprising a second organic metal complex compound mixed with an electron transport material" recited in claim 26.

Since Kido does not disclose at least the features of claim 27 discussed above, it is respectfully requested that the rejection of claim 27 under 35 USC 102(b) as being anticipated by Kido be withdrawn.

Dependent Claims 2-8, 10, 12-15, 17-22, and 24

Notwithstanding the position taken by the Examiner, it is noted that dependent claims 2-8, 10, 12-15, 17-22, and 24 depend directly or indirectly from independent claims 1 and 16, and thus recite all of the features recited in claims 1 and 16 together with further features of the invention.

Accordingly, it is submitted that claims 2-8, 10, 12-15, 17-22, and 24 are patentable over Kido for at least the reasons discussed above that claims 1 and 16 are patentable thereover, and it is respectfully requested that the rejection of claims 2-8, 10, 12-15, 17-22, and 24 under 35 USC 102(b) as being anticipated by Kido be withdrawn.

New Dependent Claims 28-30

It is submitted that Kido does not disclose the feature of new claim 28 "wherein the second layer is between the emitting layer and the first layer," or the feature of new claim 29 "wherein the second organic film layer is between the electron transport layer and the first organic film layer," or the feature of new claim 30 "wherein the second layer is between the electron transport layer and the first layer" for at least the reasons discussed above that Kido does not disclose the similar feature "a second organic film layer provided between the emitting layer and the first organic film layer" recited in claim 1. Accordingly, it is submitted that new claims 28-30 are allowable over Kido, and an indication to that effect is respectfully requested.

Allowable Subject Matter

The indication that claims 9, 11, 23, and 25 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims, is acknowledged. However, claims 9, 11, 23, and 25 have not been rewritten in independent form as suggested by the Examiner at this time because independent claims 1 and 16 from which claims 9, 11, 23, and 25 depend are also considered to be allowable for the reasons discussed above.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

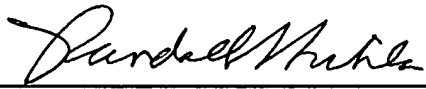
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this paper, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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